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Indian Standard

SPECIFICATION FOR
CHROMED BUFF CALF SKIN IN
WET-BLUE CONDITION

(*First Revision*)

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BUREAU OF INDIAN STANDARDS
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*Indian Standard*SPECIFICATION FOR
CHROMED BUFF CALF SKIN IN
WET-BLUE CONDITION*(First Revision)*

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Indian Standard

SPECIFICATION FOR
CHROMED BUFF CALF SKIN IN
WET-BLUE CONDITION

(*First Revision*)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 30 March 1987, after the draft finalized by the Leather Sectional Committee had been approved by the Chemical Division Council.

0.2 Chrome tanned buff calf skin in wet-blue condition is known in trade as wet-blue calf. In this condition it is stored, transported or exported and serves as an ideal starting material for processing it further into finished leather.

0.3 This standard was originally published in 1976 and is being revised in view of recent technological developments. In this revision, changes have been made in the requirements of pH of water extract, shrinkage temperature, pH at completion of chrome tanning and the test method for determining the fungicidal efficacy. The period for which the leathers are expected to inhibit mould growth has also been specified.

0.4 This standard is formulated to guide the tanner to offer a uniform semi-processed leather to the purchaser, to be later processed into finished leather.

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Rules for rounding off numerical values (*revised*).

1. SCOPE

1.1 This standard prescribes the requirements, and methods of sampling and test for chromed buff calf skin in wet-blue condition.

2. TERMINOLOGY

2.1 For the purpose of this standard, the definitions given in IS : 1640-1960* shall apply.

3. REQUIREMENTS

3.1 Raw Material — The material shall be wet-salted or green buff calf skin.

3.2 Tanning — The material after pretanning operations shall be chrome tanned. Suitable fungicides shall be incorporated in the skin to inhibit mould growth in the wet-blue condition. Chrome tanning shall be completed above a pH of 3.2.

3.3 Fungicidal Additives — Fungicides used to inhibit mould growth and pigmentation in the wet-blue skin shall be effective and shall not cause health hazard. The treated wet-blue skin shall show no mould growth or pigmentation when examined under the binocular microscope at $\times 30$ after subjecting it to the test prescribed in Appendix A.

3.3.1 The fungicide is to be applied in appropriate quantity to ensure storage up to 4 months in the temperature and humidity prevailing during storage or transportation.

NOTE — The following fungicides are recommended as suitable:

- a) *p*-chloro-*m*-cresol;
- b) *p*-nitro-phenol;
- c) sodium pentachlorophenate;
- d) β -naphthol;
- e) *o*, *m* and *p*-cresols; and
- f) benzimidazole.

3.4 Finish — The material shall have a clean flesh side and the grain side shall be free from short hair and the tannage should be uniform in colour over the surface with no localized deposits or stains.

3.4.1 The size and grading shall be as agreed to between the purchaser and the supplier.

3.5 The material shall comply with the requirements given in Table 1.

*Glossary of terms relating to hides, skins and leather.

TABLE 1 REQUIREMENTS OF CHROMED BUFF CALF SKIN IN WET-BLUE CONDITION

(Clause 3.5)

SL No.	CHARACTERISTIC	REQUIREMENT	METHOD OF TEST IN	
			IS : 582-1970*	IS : 5914-1970†
(1)	(2)	(3)	(4)	(5)
i)	Moisture content, percent by mass	As agreed to between the purchaser and the supplier	LC:2	—
ii)	Hide substance, percent by mass, <i>Min</i>	60	LC:5	—
iii)	Chrome content (as Cr_2O_3), percent by mass on hide substance, <i>Min</i>	2.5	LC:10	—
iv)	pH of the water extract	Not below 3	LC:18	—
v)	Shrinkage temperature, <i>Min</i>	85°C	—	LP:10

NOTE — The calculation of SI No. (ii) and (iii) shall be done on zero percent moisture basis. The moisture content shall be determined as prescribed in LC:1 of IS : 582-1970*

*Methods of chemical testing of leather (revised).

†Methods of physical testing of leather.

4. PACKING AND MARKING

4.1 Packing — The chrome tanned buff calf skins in wet-blue condition may be packed in polyethylene film/sheet as agreed to between the purchaser and the supplier so as to preserve their original wet condition.

4.2 Marking — The packages shall be marked with the name of the manufacturer; trade-mark, if any; month and year of manufacture; number of pieces of skins; and other details desired by the purchaser.

4.2.1 Packages may also be marked with the Standard Mark.

NOTE — The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers, may be obtained from the Bureau of Indian Standards.

6. SAMPLING

6.1 For declaring the conformity of buff calf skins in a lot to this specification, the scale of sampling and criteria for conformity shall be as given in Appendix B.

APPENDIX A

(Clause 3.3)

TEST FOR FUNGICIDAL EFFICACY

A-1. OUTLINE OF THE METHOD

A-1.1 Untreated leathers as well as those leathers treated with agents to promote mould resistance are smeared, sprayed or swabbed with mixed spore suspension of species of mould found in tanned leathers and the fungicidal efficacy of such leathers is evaluated.

A-1.2 Conditions prescribed for sampling in this test method correspond to the conditions to which the leathers are subjected in normal storage and transit.

A-2. SAMPLE

A-2.0 The sample shall be treated as follows.

A-2.1 One portion of the sample (A) is kept for seven days at $45 \pm 2^{\circ}\text{C}$ in an oven with forced air circulation and leached by drumming for three hours in about 30 times their mass of water at $27 \pm 2^{\circ}\text{C}$. The leached samples are then drained and blotted.

A-2.2 The second portion (B) of the sample is tested as received.

A-2.3 Cut four strips of 50×10 mm test pieces from the treated as well as untreated samples.

A-3. APPARATUS

A-3.1 Containers for Keeping Test Pieces — Any suitable glassware which can be conveniently stoppered, namely, jars, desiccators, glass tanks, etc, with greased covers to preclude loss of water vapour during the test may be used. The vessel may contain water at the bottom or cotton wool or clean sand previously saturated with boiling water. This is done to obtain 100 percent relative humidity at approximately 30°C .

NOTE — The same vessel shall not be used for simultaneous testing of samples treated with different fungicides.

A-3.2 Incubator — One, capable of maintaining $45 \pm 2^{\circ}\text{C}$ with forced air circulation and another capable of maintaining $25 \pm 2^{\circ}\text{C}$.

A-3.3 Binocular Microscope — Capable of $\times 30$ magnification.

A-4. REAGENTS

A-4.1 Standard Mixed Spore Suspension* — A standard mixed spore sand suspension comprising the following species of moulds shall be used in the test:

Any three of the following *Aspergillus* species:

Aspergillus niger

Aspergillus flavus

Aspergillus terreus

Aspergillus nidulans

Aspergillus wentii

and, any four of the following *Penicillium* species:

Penicillium frequentans

Penicillium purpurogenum

Penicillium rubrum

Penicillium helium

Penicillium chrysogenum

Penicillium verruculosum

Penicillium Spinosum

and, any one of the following other species:

Pacilomyces variotii

Mucor mucedo

Trichoderma viride

With each batch of such a suspension, a list showing the organisms incorporated therein as well as the date, prior to which the culture is to be used, shall be furnished.

A-5. PROCEDURE

A-5.1 Dampen the treated test pieces (see A-2.3) with sufficient water for about five minutes, smear, spray or swab with mixed spore suspension

*At present sand spore suspensions of species of mould, usually found in tanned leathers, are supplied by the Central Leather Research Institute, Madras.

and then subsequently suspend them above a free water surface in a suitable covered vessel as described under A-3.1.

A-5.2 Viability Control — Simultaneously, tests shall be carried out with control test pieces of leather not treated with fungicide. If this untreated material fails to show any abundant growth of the test organism, the test shall be considered inconclusive and whole test be repeated.

A-5.3 Incubation — Incubate the test pieces for 30 days at $25 \pm 2^{\circ}\text{C}$ and 95 to 100 percent relative humidity in the incubator (*see* A-3.2), or relative humidity cabinet kept in the dark.

A-5.4 The test pieces shall be examined at frequent intervals at least twice a week under the microscope at $\times 30$ and the date of first appearance of mould growth or pigmentation shall be noted.

A-6. ASSESSMENT OF FUNGICIDAL EFFICACY

A-6.1 Presence or absence of mould growth or pigmentation as well as its content at the end of the incubation period may be assessed visually and indicated in the test report as vigorous (entire of test piece covered with mould growth or pigmentation in test period), moderate (three-fourths of the surface of test piece covered with mould growth or pigmentation in test period), very slight (one-quarter of the surface of test piece covered with mould growth or pigmentation in test period), and nil (no mould growth or pigmentation in test period).

A-6.1.1 The test report shall also state the following:

- a) Number of samples tested;
- b) Nature of the samples tested (A) or (B) (A-2.1 or A-2.2);
- c) Date of incubation; and
- d) Date of first appearance of mould growth or pigmentation.

APPENDIX B

(Clause 5.1)

SAMPLING OF CHROMED BUFF CALF SKINS

B-1. SCALE OF SAMPLING

B-1.1 Lot— All chrome tanned buff calf skins in a single consignment, processed from same type of raw material, shall constitute a lot.

B-1.2 For ascertaining the conformity of calf skins in a lot, samples shall be tested from each lot separately.

B-1.3 The number of pieces of calf skins depend on the size of lot and shall be in accordance with Table 2.

TABLE 2 NUMBER OF PIECES OF BUFF CALF SKINS TO BE SELECTED
(Clauses B-1.3, B-1.3.1, B-3.1.1, B-3.2, B-3.3 and B-3.4)

No. of Pieces in the Lot	Visual Examination		No. of Pieces to be Selected for Testing Fungicidal Efficacy
	No. of Pieces to be Selected	Permissible No. of Defective Pieces	
(1)	(2)	(3)	(4)
Up to 100	8	1	3
101 to 300	13	2	4
301 to 500	20	3	5
501 to 800	32	5	6
801 to 1 300	50	7	7
1 301 and above	80	10	8

B-1.3.1 At least 10 percent of the packages of the calf skins shall be opened and approximately equal number of pieces selected at random from each package so as to constitute the required sample size given in col 2 of Table 2.

B-2. POSITION OF SAMPLING

B-2.1 The position of sampling for carrying out various tests given in the specification shall be according to IS : 5868-1983*.

B-3. NUMBER OF TESTS AND CRITERIA FOR CONFORMITY

B-3.1 All the pieces of calf skin selected in the sample shall be examined for tanning and finish. Any piece failing to meet any of these requirements shall be considered as defective.

*Method of sampling for leather (first revision).

B-3.1.1 A lot shall be declared as conforming to the requirements of tanning and finish, if the number of defective pieces found in the sample is less than or equal to the corresponding permissible number of defectives given in col 3 of Table 2.

B-3.2 A sub-sample of pieces of calf skins shall be selected from those pieces examined and found satisfactory under **B-3.1** and according to col 4 of Table 2. Each of the pieces of the sub-sample shall be tested for fungicidal efficacy. The lot shall be considered as having satisfied the requirements of this characteristic if none of the pieces tested for this purpose fails to meet the corresponding requirements of the specification.

B-3.3 For moisture content, three independent determinations shall be made for each lot. For all other characteristics given in Table 1, two tests shall be carried out. The lot shall be considered to have met these requirements if all the pieces tested for this purpose satisfy the corresponding requirements given in this specification.

NOTE — The number of pieces required under **B-3.3** may be selected from those already tested and found satisfactory according to **B-3.1** and **B-3.2**.

B-3.4 The lot shall be declared as conforming to the requirements of this specification, if requirements of **B-3.1**, **B-3.2** and **B-3.3** are satisfied.

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Base Units

<i>Quantity</i>	<i>Unit</i>	<i>Symbol</i>
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

<i>Quantity</i>	<i>Unit</i>	<i>Symbol</i>
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

<i>Quantity</i>	<i>Unit</i>	<i>Symbol</i>	<i>Definition</i>
Force	newton	N	$1 \text{ N} = 1 \text{ kg.m/s}^2$
Energy	joule	J	$1 \text{ J} = 1 \text{ N.m}$
Power	watt	W	$1 \text{ W} = 1 \text{ J/s}$
Flux	weber	Wb	$1 \text{ Wb} = 1 \text{ V.s}$
Flux density	tesla	T	$1 \text{ T} = 1 \text{ Wb/m}^2$
Frequency	hertz	Hz	$1 \text{ Hz} = 1 \text{ c/s(s}^{-1}\text{)}$
Electric conductance	siemens	S	$1 \text{ S} = 1 \text{ A/V}$
Electromotive force	volt	V	$1 \text{ V} = 1 \text{ W/A}$
Pressure, stress	pascal	Pa	$1 \text{ Pa} = 1 \text{ N/m}^2$

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